

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
24 December 2003 (24.12.2003)

PCT

(10) International Publication Number
WO 03/107028 A1

(51) International Patent Classification⁷: G01R 33/44,
G01V 3/14, G01N 24/08

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(21) International Application Number: PCT/AU03/00737

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(22) International Filing Date: 13 June 2003 (13.06.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
PS 2950 13 June 2002 (13.06.2002) AU

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU,
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,
CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,
LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,
MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD,
SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US,
UZ, VC, VN, YU, ZA, ZM, ZW.

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(84) Designated States (*regional*): ARIPO patent (GH, GM,
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,
ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,
SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM,
GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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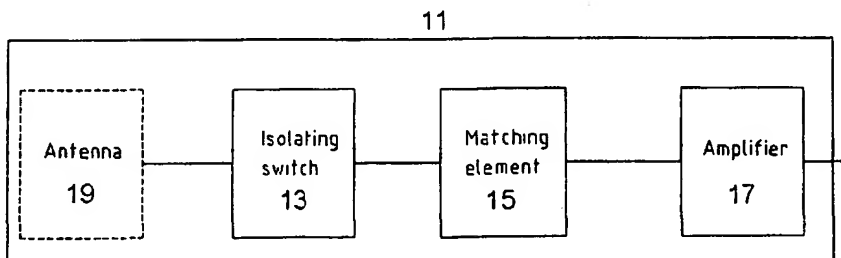
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Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: A RECEIVE SYSTEM FOR HIGH Q ANTENNAS IN NQR AND A METHOD OF DETECTING SUBSTANCES



(57) Abstract: A receiving system (11) for connection to an antenna arrangement (19) for detecting response signals from a sub-
stance having quadrupolar nuclei excited so as to produce nuclear quadrupole resonance in certain of the quadrupolar nuclei. A
method for receiving a response signal via the antennae arrangement (19) is also described. The receiving system (11) includes an
amplifier (17) to amplify the received response signal from the antenna arrangement (19) for subsequent processing, a matching sec-
tion (15) to match the amplifier (17) to the antenna (19), and an isolating switch (13) to isolate the antenna from the receiving system
(11). The matching section (15) noise matches the receiving system (11) to the antenna (19) during a receiving period to reduce the Q
factor of the antenna without significantly degrading the signal to noise ratio. The isolating switch (13) isolates the receiving system
(11) from the antenna (19) during a transmitting period when an excitation signal is transmitted by the antenna (19) to irradiate the
substance. It also electrically connects the receiving system (11) to the antenna during the receiving period immediately after the
transmitting period.

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